

Types of traditional, complementary and alternative medicines and reasons for their use by HIV-infected patients in KwaZulu-Natal Province: a cross-sectional study

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Abstract

This study aimed at determining the types, reasons for use, and perceived benefits or risks of traditional, complementary and alternative medicine (TCAM) used concurrently with antiretroviral therapy (ART) by HIV infected patients. A cross-sectional study was carried out, using a researcher administered semi-structured questionnaire, among HIV infected patients attending public health sector hospitals in KwaZulu-Natal. Of the 1748 participants interviewed, 142 (8.12%) stated that they had used African Traditional Medicine (ATM) while 37 participants (2.12%) reported having Complementary and Alternative Medicine (CAM) concurrently with prescribed antiretroviral medicines. Overall, the proportion of patients who used ATM and CAM concomitantly with ARV drugs was 10.24%. Respondents listed mainly Imbiza (traditional herbal of leaves, wood barks, and roots), supplied by local African traditional healers, namely Herbalists (Inyanga) and Diviners (Sangoma) before ART (32/395, 8.10 %) and after ART (23/155, 14.84 %). Isihlungu sama indiya, supplied by Ayurveda doctors and local markets, was the most CAM practice (18/66, 27.27%) reported by participants. In conclusion, a few respondents reported having health benefits while others experienced negative effects of combining prescribed antiretroviral medicines with traditional herbal mixtures. More pharmacovigilance studies are needed for a better understanding of consequences resulting from concomitant use of prescribed medicines with non-conventional treatment options.

Keywords: HIV /AIDS, Antiretroviral therapy, Traditional-Complementary and Alternative medicine, benefits, adverse effects

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Introduction

The introduction of highly active antiretroviral therapy (HAART) into the public sector healthcare facilities has improved access to treatment for human immune-deficiency virus (HIV) infected individuals and afforded them a better quality of life (Joint United Nations Programme on HIV/AIDS (UNAIDS), 2012). This has translated into a significant drop in acquired-immune-deficiency-syndrome (AIDS) related deaths by 32% in sub-Saharan Africa between 2005 and 2011 (UNAIDS, 2012). In spite of the progressive implementation of a successful public health sector antiretroviral program in South Africa since 2004, a number of patients taking antiretroviral medicines (ARVs) also consume African Traditional Medicine (ATM) (Nlooto and Naidoo, 2015). HIV infected patients also use other complementary and alternative medicine (CAM) which refers in some countries to “a broad set of health care practices that are not part of the country’ s own tradition and are not integrated into the dominant health care system”(World Health Organization, 2002).

Reasons given by African-Americans for taking CAM for chronic diseases included treating or preventing a specific health problem/condition (Barner et al., 2008). Reducing body heat and improving general health were the two main reasons cited by Malaysian HIV infected patients for taking herbal remedies for their condition (Hasan et al., 2010). In addition, some of these Malaysian patients perceived themselves to be healthier than their counterpart HIV-negative individuals due to their use of CAM (Hasan et al., 2010). The concomitant use of traditional medicine or CAM amongst patients with HIV-infection has been reported in a number of countries both in the developed and developing world (Ekwunife et al., 2012; Littlewood & Vanable, 2011; Chen et al., 2009). One such study conducted in KwaZulu-Natal, reported perceived benefits of traditional, complementary and alternative medicine (TCAM) were not associated with the severity of HIV infection (Peltzer et al., 2008). Many HIV–infected patients in Africa use ATM, CAM and /or over-the-counter (OTC) supplements on their own initiative (Malangu, 2007).

HIV infected patients in Uganda had used traditional medicines in combination with HAART to alleviate cough symptoms, constant fever and general pain associated with their HIV-infection (Lubinga et al., 2012; Namuddu et al., 2011). Cultural beliefs about treating naturally caused and witch-craft-induced illnesses result in many individuals with AIDS and sexually transmitted diseases consulting traditional healers in Tanzania (Plummer et al.,2006). In a study conducted in

South Africa, less than 5% of participants were of the opinion that traditional medicine was more effective in treating HIV infection than ARV medicines (De Jager et al., 2010).

Despite the proven benefit of free access to HAART offered in the public sector healthcare system and the implementation of a successful antiretroviral program in South Africa, a few HIV patients still resort to TCAM (Nlooto and Naidoo, 2015). What could be the reasons behind such behaviours and factors associated with the concurrent use of HAART with TCAM for patients on a successful antiretroviral regimen? After more than a decade after the public sector roll-out of antiretroviral program in South Africa, it is imperative to understand HIV patients' perspectives on why they still use ATM or CAM practices. Perceived benefits for using ATM or CAM may help to improve the care rendered to them by healthcare workers. Therefore; this study was undertaken in the KwaZulu- Natal Province (KZN) of South Africa to determine the types of TCAM used by HIV patients, their reasons for use, and the perceived health benefits / risks of combining ATM or CAM with ARVs.

Methods

Study design and Study Sites

This was a cross-sectional study based on a semi-structured questionnaire used to interview HIV/AIDS patients visiting eight selected public sector healthcare antiretroviral clinics situated in the eThekweni Metro and the Uthukela Health Districts of KZN, South Africa. The clinics were attached to either hospitals (regional, district or academic) or community health centres. Interviews were conducted between April and November 2014. In order to maintain confidentiality, the study sites were coded as follows: RHRA1, RHRA2, RHNRA3, AHNRA4, DHRA5, DHNRA6, CHCRA7, and CHCNRA8. Coding was done by the type of health facilities with reference to Regional hospital(RH), District Hospital (DH), Academic Hospital (AH)) or a Community Health Centre (CHC), and whether the clinic staff received rural allowance (RA) or no -rural allowance (NRA) due to the locality of the facility.

Study population and sampling

The study population consisted of HIV infected patients aged 18 years and above who were either on HAART alone or in combination with other prescribed medicines for other medical conditions, and using or not using TCAM. Ethical approval to conduct the study was obtained from the

Biomedical Research Ethics Committee (BREC) of the University of KwaZulu-Natal under reference number BE 377/13. Study participants were briefed about the study and those who gave written consent to participate were interviewed.

Procedure of recruitment and selection of study participants

HIV patients visiting the eight antiretroviral clinics included in the sample were approached on days of data collection and were asked if they would like to participate in the study. An information letter about the study was read and explained to them for clarity. Those who agreed to participate were asked to give written consent before being included in the study. Amongst other questions in the semi-structured questionnaire, study participants were asked if they had ever used ATM and /or CAM for HIV infection before and after post starting with HAART. Other questions included the types, reasons for use, and perceived benefits of ATM and /or CAM for HIV infection post HAART. Their responses resulted in identifying those participants who used such traditional medicines or practices for HIV infection concurrently with prescribed ARVs. Researchers did no manipulation and randomization to a treatment group. The participant selection aimed to include adult patients from different racial and age groups, irrespective of gender, in order to gauge their various perspectives.

Data Collection technique and instrument

Interviews lasting 20-25 minutes were conducted in the language of preference of participants (English or Zulu), by a team of trained data collectors. For validation purpose, the questionnaires were tested on 30 HIV-infected patients in two different antiretroviral sites not included in the final analysis, and were thereafter amended.

Data analysis

Descriptive and inferential statistical analysis was carried out using SPSS version 23. Percentages were reported. Frequency of use was presented in tables. Chi-square tests were performed to determine association between socio-demographic variables and use of African Traditional Medicine (ATM) and CAM with prescribed ARVs among participants. A p-value ≤ 0.05 was considered to be statistically significant.

Results

Use of ATM and CAM by study participants

A total of 1748 participants were interviewed, yet, 21.85% of participants (382/1748) stated having used ATM and CAM before starting with ART. After starting ART, 142 (8.12%) stated that they had used ATM, while 37 participants (2.12%) reported having used CAM. Therefore, overall, the proportion of patients who used ATM and CAM concomitantly with ARV drugs was 10.24%. Of the 142 participants who used ATM, the majority were females (96/142, 67.60%), Black Africans (139/142, 97.89%), aged between 31 and 66 years old (123/142, 86.62%), and single or never married (106/142, 74.65%). A bivariate analysis of sociodemographic variables with the use of ATM showed a significant association only with regard to religion, as Christians used significantly ATM than the other categories (Table 1).

The use of concomitant use of CAM and ARV drugs was reported by 37 participants of whom 28 were females (28/37, 75.68%), Black Africans (35/37, 94.60%), aged between 31 and 66 years old (30/37, 81.08%), and single (27/37, 72.97%). No statistically significant difference was associated in the cross-tabulation of the use of CAM with other socio-demographic variables. Table 1 presents the frequencies of use of ATM and CAM per gender, racial group, age, marital status and religious affiliation.

Table 1: Gender and other characteristics in the use of ATM and CAM with ART

Variables	ATM use			CAM use		
	Yes (n=142)	No (n=1606)	p-value	Yes (n=37)	No (n=1711)	p-value
Gender						
Male	46	412	0.358	9	449	0.992
Female	96	1194		28	1262	
Racial group						
Black	139	1546	0.994	35	1650	0.920
Colored	2	37		1	38	
Indian	1	16		1	16	
Age in years						
18-30	19	263	0.307	7	275	0.373
31-66	123	1343		30	1437	
Marital status						

Never married	106	1218	0.562	27	1297	0.615
Married	26	293		6	313	
Divorced	1	20		0	21	
Living with partner	9	50		4	55	
Home language						
Zulu	125	1412	0.999	34	1503	0.942
Other African languages	4	73		1	76	
Xhosa and other South African languages	4	66		1	69	
English/other	9	48		1	57	
Religious affiliation						
Christian	89	1256	0.000	24	1321	1.000
Shembe	18	122		6	134	
Zion Christian Church	23	74		4	93	
Atheist	2	52		0	54	
Believers in ancestors/traditional Zulu	4	27		1	30	
Other(St Johns,Chibihi, Wisile)	6	50		2	54	

Moreover, based on employment status, unemployed participants used more ATM and CAM than those with income generating employment (74/142, 52.11% and 19/ 37, 51.35%, respectively) but the difference was not statistically significant. Table 2 presents the use of ATM and CAM by study participants following highest education and income situation.

Table 2: Use of ATM and CAM by education and income category

Variables	ATM use			CAM use		
	Yes (n=142)	No (n=1606)	p- value	Yes (n=37)	No (n=1711)	p- value
Highest education level						
Some primary school	18	145	0.797	3	160	0.995
Completed primary school	14	155		3	166	
Some high school grade 7 to grade 11	54	646		18	682	
Completed high school	47	512		9	550	
Post high school diploma	NIL	40		1	39	
Higher certificate	5	77		1	81	
Bachelor degree	2	11		1	12	
Never attended school and other	2	13		1	14	

Income situation						
Unemployed, no formal income	74	957	0.186	19	1012	0.982
Employed with income of R≤100 000	60	525		16	569	
R101 000-200 000	4	82		1	85	
R201-000-300 000	NIL	12		NIL	12	
R301 000-400 000	NIL	5		1	4	
R401 000-500 000	NIL	2		NIL	2	
Self-employed and undisclosed income	2	2		NIL	4	
Missing value	2	21		NIL	21	
Note : One US\$=12 Rands at the time of data collection						

Types and indications of ATM used for HIV infection by study participants

The frequency of various types, sources of acquisition and purpose for use of ATM by study patients are presented in Table 3. Overall, an association of the use of TM/CAM by respondents before (382) and after (142) starting with ART showed a very significant difference, $p \leq 0.001$. The types of ATM used as reported by participants included mainly:

1. *Imbiza* (traditional herbal mixtures of leaves, wood barks, and roots): this is supplied by local African traditional healers, namely herbalists (Inyanga) and diviners (Sangoma). Its usage seems to have increased from 8.10 % (32/395) before starting ART to 14.84 % (23/155) after the initiation of ART.

2. *Isiwasho* (traditional blessed water): Supplied by African traditional healers for bathing. This liquid is sometimes simply sea-water from the Indian Ocean; or a herbal mixture containing aromatic incenses (*imphepo*). Its usage also increased from 12.15% (48/395) before starting with ART to 25.81% (40/155) post-ART initiation. *Isiwasho* (blessed water) was reported to be often used in combination with *crocodile oil and pig fat* for skin conditions.

As shown in Table 3, drinking, and sometimes bathing with *water prayed for and blessed* by faith healers (abapofeti) or pastors/priests (umthandanzi for Shembe) at church was listed as another way of caring for HIV and skin conditions in combination with *Vaseline of Nazareth or Shembe oil*. They were 3.93% (15 of 382 participants) pre-ART and 3.5% (5 of 142 participants) post-ART.

Furthermore, more than a third of respondents that used ATM pre-ART (138/382, 36.1%) stated using it post-ART (138/142, 97.18 %). This group of participants reported that ongoing use of these types of ATM was beneficial to them.

Table 3: Types, sources, indications and reasons of ATM use prior to and after ART

Types of ATM used	Sources	Indications	Frequency before ART* (n=382)	Frequency after ART* (n=142)
Herbal therapies				
Traditional herbal mixtures for vomiting (Imbiza yo kuphalaza)	Herbalists, Diviners	To induce vomiting	32	23
Unnamed herbal mixtures	Herbalists, Diviners	To induce vomiting	30	14
Ameliorated herbal mixtures				
Uzifozonke®(10),Vukuhlale®(8), Ingwe® (3), Aloe vera(20 and Stameta®(2)	Shops, community pharmacies, street vendors	To boost immune system	25	19 (uzifozonke:7, vukuhlale:7, Ingwe:3, stameta:2
Traditional herbal mixtures as enemas (Imbiza/muthi wa ku cleanser and isihlambiso)	Herbalists, Diviners	Used as enemas for cleansing colon and body	5	5
Ginger roots (<i>zingiber officinalis</i>)(2), African potato (<i>Hypoxis spp</i>)(1), Dubulagoqe (1), garlic(<i>Allium sativa</i>)(1)	Herbalists, Diviners	To boost immune system, treat opportunistic infections(garlic)	5	6 (ginger:2, African potato:2, Dubulagoqe:1, garlic:1,
Dried herbal mixtures for steaming (ukugquma)	Herbalists, Diviners	For sinusitis, fever and headaches	5	1
Herbal mixtures for herpes or shingles (Ibande)	Herbalists,	To treat viral infections	3	3
Herbal mixture for detoxification (kipha nyongo/wenyongo)	Herbalists,	To detoxify the body	3	1
Gum tree leaf extract	Herbalist	Stomach	2	2
Traditional injection(Gcaba)	Diviner	Scarification	1	NIL

Umsilinga (<i>Azadirachta indica</i> , Neem tree)	Herbalists	To boost immune system	NIL	1
Miscellaneous preparations[Black extract of silver pot (Insiza), waste of animal stomach (Mswane), sniffed leaf extract(Umbhemiso)]	Herbalists, Diviners Self-care	Treat HIV related symptoms	20	15
Holistic body-mind practices				
Traditional blessed water (isiwasho)	Herbalists, Diviners	For bathing and sprinkling	48	40
Burning of incense (Imphepo)	Herbalists, Diviners Family elders	For peace with ancestors	15	5
Rituals (goat slaughtering, powder for ritual (Izinyamazane)	Diviner Sangoma		2	3
Herbs smoked (marijuana/cannabis)	Drug peddlers, self-grown	For appetite and relaxation	14	10
Faith healing related products				
Enema from church (1), prayer ritual by umthandazi (1), Shembe oil(1), Vaseline of Nazareth (Shembe)(2)	Faith healers or pastors/priests	For protection, for skin conditions	5	4(prayer ritual by umthandazi (1), Vaseline of Nazareth(2), shembe oil(1)
Others				
Herbal life products(1), Isilungu sa maindiya(1), Phytomed taebags and pills(2), ozone water(1), unnaed teabags(1)	Shops , local markets	Treatment of different ailments	6	3 Herbal life(1), isilungu sa maindiya(1), ozone water(1),
Missing			173	-
Total			395*	155*

Legend:* =More than one type of ATM listed by participants

Types and sources of CAM reported by participants

Of the 37 participants who reported using CAM post-ART, six (6/37, 16.22%) stated that they also used some types of ATM at the same time. The two modalities of CAM used by majority of

participants were Ayurveda and Traditional Chinese Medicine (TCM). Table 4 summarizes the types of products used and their sources.

Table 4: Types and sources of CAM by study participants with ART

Types of CAM	Sources of products used	N (%)
Chinese green tea	Chinese health shops, traditional Chinese doctors, street vendors	14 (21.21)
Unnamed immune booster teabags and mixtures	Health shops	7(10.61)
Multivitamins/micro-nutrients and minerals	Health shops, pharmacies	3(4.55)
Massage-reflexology	Thai shops, massage shops, aromatherapy	3(4.55)
Acupuncture	Chinese traditional doctors	2(3.03)
Marina spa	Health shops	2(3.03)
Detox mixtures (Splina®)	Malaysian registered health shop	1(1.52)
Isihlungu sama indiya	Ayurveda doctor, local market	18(27.27)
Procydin®	Health shop, pharmacy	1(1.52)
Spirulina®	Health shop, pharmacy	1(1.52)
Yaro drops	Health shop	1(1.52)
Sage tablets	Health shop	1(1.52)
Herbal life® products	Vendor, distributor	1(1.52)
Echinaforce® tablets, Module 8® tablets, Rejuvena®	Community pharmacy, over –the counter	10(15.15)
Himalaya red salt,	Shops	1(1.52)
Total		66 (100)

*More than one type of CAM listed by participants

Use of ATM for non HIV related problems

Besides using ATM for managing and caring for HIV infection, some participants reported using some types of traditional herbal mixtures for relieving other illnesses and for holistic body-mind care and other socio-cultural needs. Peace of mind with ancestors, dead partners or family members was sought through rituals, burning of incense (*Imphepo*) and slaughtering of goats. Table 5 presents the use of ATM for conditions other than HIV-related.

Table 5: Use of ATM for non- HIV conditions

Types of ATM used	Reasons for ATM use besides HIV conditions(n=142)			
	Other diseases	Holistic body-mind care	Socio-cultural needs	Total number of participants
Herbal therapies				
Traditional herbal mixtures for vomiting (Imbiza yo kuphalaza)	11	4	NIL	15
Traditional herbal mixtures as enemas (<i>Imbiza</i> /muthi wa ku cleanser)	6	NIL	NIL	6
Black extract of silver pot (insiza) and miscellaneous preparations	6	NIL	NIL	6
Steaming with dried herbals (ukugquma)	4	2	NIL	6
Herbal mixtures (Gcaba)	2	NIL	NIL	3
Herbal mixtures (Ibhande)	3	NIL	NIL	3
Holistic body-mind practices				
Blessed water (isiwasho)	0	24	2	26
Water prayed for and blessed, sometimes mixed with herbal mixtures and Vaseline of Nazareth or Shembe Oil	5	5	NIL	10

Burning of incense (Imphepo) and goat slaughtering rituals	NIL	4	13	17
Herbs (marijuana/cannabis)	9	9	9	27
Vomiting of evil	NIL	4	4	8
Other practices				
Sunlight bar soap with herbal mixtures	3	NIL	NIL	3

From Table 5, it can be seen that some ATM products such as herbs (cannabis), *Imbiza yo kuphalaza*, *Ukugquma*, *Isiwasho*, *Imphepo* and water prayed for have been used for more than one purpose. Other products such as the Sunlight bar soap, *Ibhande*, *Gcaba*, and *Isiza* have been used for treatment of diseases only. It was reported by some participants that herbal enemas, mixtures of herbal plants and sunlight bar soaps were used for chronic constipation (2/142, 1.41%); pig fat or crocodile oil with herbal mixtures for skin conditions (3/142, 2.11%); gum tree leaves and gum tree extracts for sinusitis (3/142, 2.11%); unnamed herbal mixture for stroke (2/142, 1.41%); *Inyongo* and *umvusonkunzi* for general fatigue and erectile dysfunction (2/142, 1.41%).

Other reasons for use of ATM and CAM prior to and after HAART initiation

Over half of participants reported “the search for a cure for HIV infection” as the main reason for using ATM prior to (212/382, 55.49%) and after HAART initiation (81/142, 57.04%). *Isihlungu sama ndiya* (powdery form of a plant from India sold on the local market or from Ayurveda doctors) was used in combination with other African recipes to chase evil spirits and attract good luck pre-ART (20/382, 5.24%) and post-ART (18/142, 12.68%).

A few patients reported seeking witchcraft from healers (2/142, 1.41%) to help chase evil spirits that prevented them from enjoying overall good health status. Other reasons for use of ATM pre and post HAART and the use of CAM post HAART are presented in Table 6.

The overall proportion of participants who listed the search of cure for HIV infection did not really decline pre-ART (212/382, 55.50%) and post-ART era (81/142, 57.04%). However, the proportion

of participants looking for attaining good health and strengthening body increased from pre ART phase (12/382, 3.14%) to post ART era (21/142, 14.79%).

Table 6- Other reported reasons for using TCAM

Reasons	ATM Use *		CAM Use
	Before ART(n=382)	After ART (n=142)	After ART (n=37)
Attract good luck, money and jobs	17	19	NIL
Boost ARV treatment	NA	9	2
Chase away bad and evil spirits	19	15	1
Chase bad dreams and headaches after ART	NA	5	NIL
Cleanse body, urine and blood	26	23	7
Contraception	NIL	5	NIL
Cultural beliefs	20	20	NIL
Detoxify the whole body	16	8	8
Enhance appetite and combat weight loss	30	25	NIL
Family issues and future predictions	2	2	NIL
Good skin appearance	NIL	15	2
Overall good health and strengthen body	12	21	4
Promote good sleep	NIL	10	2
Protection from ancestors	5	5	1
Treat ARV side-effects, build up muscles, relieve tensions	NA	10	3
Search for cure of HIV	212	81	4
Vomit evil	5	10	5

*More than one main reason allowed by participant. Legend: NA=not applicable

Use of vitamins and over-the-counter supplements (OTC) from community pharmacies

Some participants used registered products supplied by community pharmacies. Multivitamins and micronutrients, including Centrum[®], vitamin B complex, iron and magnesium supplements such as Pregamal tablets[®] and Slow Mag tablets[®], were supplied through antiretroviral clinics, respectively (179/1748, 10.24%). Many patients (542/1748, 31.0%) reported visiting nearby community pharmacies for supplements such as multivitamins and vitamin B complex. They reported collecting these items from nearby community pharmacies because there were stock shortages at the antiretroviral clinics or they did not like the type of vitamins supplied by their clinics. In addition, participants preferred using the services of a community pharmacy rather than visiting traditional healers.

Perceived health benefits/risks of combining TCAM and ARVs

It is remarkable that 1712 out of 1748 participants (97.94%) reported that ARVs were beneficial and were working for them; with 32 out of 1748 (1.83%) reporting that viral load reduction was faster when ARVs were combined with traditional herbal mixtures. They further stated enjoying better health and sufficient strength in their daily activities. Some 16 out of 1748 (0.92%) reported that using the services of a CAM practitioner helped them improve their general health status. They perceived having less symptoms and health problems when combining ARVs with some traditional herbal mixtures or using the services of CAM practitioners than when using ARVs alone. They attributed these benefits to certain combinations of ARVs with CAM (*Procydin[®], Marina spa, spirulina, and sage tablets*) or traditional herbal mixtures: *Vukahlale (2), Imbiza (2), unnamed herbal teas (9), stameta (2), uzifozonke (2), Ingwe (2), hlaba drops (2), Shembe oil (2), magobongo traditional ceremony (1), and miscellaneous (8)*.

Perceived negative health benefits about ATM

A few participants (16/142, 11.27%) indicated experiencing negative health effects when they combined African traditional medicine (ATM) with their ARVs such as swollen body (3), diarrhea due to overdose of herbal enemas (3), severe skin rash and eruption of boils (3), decreased CD4 count (1), vomiting blood (1), and miscellaneous (5). Nine other participants (9/142, 6.34 %) reported not having any benefit from combining ARVs with CAM. Study participants reported using ATM or CAM on their own initiative.

Discussion

This study found that more unemployed female patients without formal income reported using TCAM than males, this finding being consistent with previous studies in South Africa (Peltzer et al., 2008; Peltzer et al., 2010) and Uganda (Lubinga et al., 2012). A study among African-Americans with HIV-infection found that being female and having a yearly income of US\$15,000 per year or more were amongst other predictors of CAM use (Owen-Smith et al., 2007). The predominance of female HIV-infected patients using TCAM in this study could be understood in the light of more female participants attending public sector healthcare facilities than males (Leichliter et al., 2011).

The use of TCAM was not very common in this study compared with another study in Malaysia, which reported herbal products in 47.2% of HIV-infected patients (Hasan et al., 2010) (5).

The types of ATM and CAM practices reported by HIV-infected patients were similar to findings from a previous South African study conducted amongst health care professionals on the use of TCAM by patients seen by them (Nlooto, 2015) 18), as well as in other studies among HIV-infected patients in South Africa (Peltzer et al., 2008; Babb et al., 2007).

The search for a cure for HIV-infection was a strong motivation that led many patients to consult traditional healers in this study. Claims of cure of AIDS-like illness caused by maliciousness or witchcraft by traditional healers have been reported in Mwanza, Tanzania (Plummer et al., 2006). Other claims of treatment by herbalists of AIDS-like disease called *chira* by the people of Mfangano Island in Kenya were also reported in the literature (Nagata et al., 2011). The reported mode of administration of certain herbal mixtures supplied by local traditional healers in this study, and the treatment of *chira* in Kenya, were similar in their involvement of drinking herbal mixtures, bathing in water, or both (Nagata et al., 2011). Enhancing appetite, combating weight loss, overall good health and good-looking appearance were amongst other reasons for using CAM and traditional herbal mixtures by participants in this study. This is in agreement with another study among African Americans who used CAM to gain weight, boost energy/appetite and the immune system (Owen-Smith et al., 2007). A study in Nigeria showed that HIV-infected patients (41.4%) started combining traditional herbal medicine less than six months after the commencement of ART to boost their immune system (Awodele et al., 2012).

Besides treating HIV infection, participants in this study used ATM for other illnesses, suggesting the need for biomedical-trained health care providers to inquire thoroughly about the socio-

psychological and bio-physiological problems that may affect HIV patients already burdened with HIV-infection.

Although allowed and recognized by law in South Africa, the use of CAM and subsequent practices not indigenous to Africa was very low among participants when compared to ATM use, suggesting the essential role of socio-cultural influences in health seeking behavior (Levers, 2006). A study amongst private healthcare sector doctors highlighted the importance of incorporating cultural values in managing HIV/AIDS patients in order to improve adherence to prescribed HAART (Naidoo, 2011).

The reasons for use of different types of TCAM in this study demonstrated the importance of holistic body-mind care and not only focusing on treating bio-physiological problems in the context of ARV guidelines. The need for health improvement was listed as a main reason for using CAM with conventional medical treatment among African-Americans (Orisatoki & Oguntibeju, 2010).

The majority of participants in this study had a positive perception of ARVs being beneficial and working for them, with a few patients reporting perceived health benefits from combining TCAM with ARVs. This finding is similar to findings in a study in Malaysia, where 40% of HIV-infected patients attributed their health improvement to the concomitant use of CAM and ARVs (Hasan et al., 2010). A study in China reported positive attitudes toward ART and traditional Chinese medicine in enhancing general health, dealing with discomforts and reducing the side effects of ART (Chen et al., 2009).

Although self-reported use of traditional, complementary and alternative medicine showed a decline in use after initiation on ART amongst patients with HIV-infection in this study, there is a need to monitor patients for adverse effects and potential negative interactions due to the concomitant use of prescribed antiretroviral medicines and TCAM (Bepe et al., 2011; Ladenheim et al., 2008; Langlois-Klassen et al, 2007). Potential pharmacokinetic interactions between herbal preparations or other CAM and ARV medicines have been highlighted by some studies (Mills et al., 2005).

Limitations of the study

This study involved participants in one province and cannot be generalized to the entire South African population. Perceived benefits and risks were collected through self-reports from participants; this is known to be prone to social desirability bias.

Conclusion

Despite the free access to conventional ART, a few patients also used African traditional herbal mixtures and/or other forms of CAM. The majority of participants used ATM rather than CAM, indicating the need and importance of a holistic body-mind care in managing HIV-infected patients. Although only a few patients perceived some health benefits regarding their concurrent use, caution is needed with regard to potential negative interactions between TCAM and prescribed ARV medicines, and requires ongoing monitoring for potential adverse effects. This is important for the individual health of patients and for promoting public health in the country in general. Enquiring about patients' use of and perceived needs for such preparations by health care professionals may help identify individuals at risk of such adverse effects in the public health sector. Pharmacovigilance related studies are needed to ensure an effective management of HIV infected patients due to potential adverse effects and drug interactions between TCAM and prescribed antiretroviral medicines.

Conflict of interest

The authors declare that they have no competing interests. MN received a stipend from DST-NRF-Indigenous Knowledge Centre of Excellence-UKZN and running expenses from the College of Health Sciences of the University of KwaZulu-Natal.

Authors 'contributions

MN and PN conceptualized the research project. MN organized data collection, analyzed data, drafted the paper, handled comments from the editor and accepted the final version of the paper. PN revised the paper for its intellectual content.

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